

## REMARKS

Entry of the foregoing, reexamination and further and favorable reconsideration of the subject application in light of the following remarks, pursuant to and consistent with 37 C.F.R. § 1.116, are respectfully requested.

Claims 1 and 4-10 are pending. Claim 1 has been amended to recite the arc shaped pressing surface formed on the valve body and extending to be centered around the axis of rotation of the rotating member. The phrase “extending to be centered around” is a literal translation of the corresponding phrase in original claim 3 of the Japanese language PCT application that was previously translated as “about the axis.” The amended phrase may better convey the original meaning of the claim language that was incorporated into claim 1 by the previous amendment. This is well supported by descriptions in the original specification, e.g., on page 7, lines 7-12, which discloses that “Each of the projecting parts 15 is formed at the center of the top thereof with semicircular cross-sectional shape bearing part 16 for mating with each of the bearing parts 11 of the upper valve housing 1 so as to become substantially coaxial with the pressing surface 14 (see FIG. 3)”; and on page 7, lines 28-31, where it states that “The shaft parts 22 are supported by the bearing parts 11 of the upper valve housing 1 and the bearing parts 16 of the lower valve housing 2 so as to be rotatable.”

No prohibited new matter has been introduced by way of the amendment. Applicants reserve the right to file a continuation or divisional application on any subject matter that might have been canceled by way of this amendment.

### **Rejections under 35 U.S.C. § 102**

Claim 1 is rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Young (U.S. Patent No. 3,511,468). The rejection is traversed.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990).

Young does not disclose the elements of the present invention arranged as required by the claim. Young discloses an apparatus for controlling the discharge of a liquid medium through a conduit. Young describes, in column 2, lines 44-46, "The assembly includes a block piece 15 provided with a concave surface 15a against which the conduit segment 12b engages"; in column 2, lines 49-50, "Pivotally mounted on frame 16 and spaced from concave surface 15 is an elongated arm 17"; in column 2, lines 55-58, "To the free or distal end of arm 17 is a roller 20, the periphery of which is adapted to engage and collapse conduit segment 12b, when arm 17 is in certain positions of pivotal adjustment"; in column 2, lines 67-69, "it is important to note that **the pivotal axis of arm 17 is offset upwardly relative to the center of curvature of surface 15a**"; and in column 3, lines 12-23, "In FIG. 5, arm 17 is shown in a full up position C wherein it is in engagement with upper stop bar 21b. While arm 17 is in position C and prior to its reaching said position, roller 20 will have collapsed a portion of the conduit segment 12b against concave surface 15a a sufficient amount to cut off flow of the adhesive or liquid medium 11 through the conduit. Once the flow is cut off and as roller 20 continues to move upwardly toward position C, a suction effect on the adhesive, trapped in the conduit between the roller 20 and the discharge end 12a is created which in turn reverses slightly the direction of flow of the trapped adhesive".

As described above, in the Young apparatus, the suction effect is caused by the additional rotation of arm 17, in which **the pivotal axis of arm 17 is offset upwardly relative**

*to the center of curvature of surface 15a* and the additional rotation is performed after roller 20 collapses a portion of conduit segment 12b against concave surface 15a so as to cut off flow of the adhesive through the conduit. Thus, due to the upwardly offset arrangement of the axis of arm 17, it appears that the movement of roller 20, accompanying the additional rotation of arm 17 to cause the suction effect, is not parallel to concave surface 15a, and the distance between roller 20 and concave surface 15a gradually decreases during the occurrence of the suction effect. Therefore, it is predicted that the amount of the movement of roller 20 to cause the suction effect is very small and the resultant reverse flow of the trapped adhesive is very slight, which makes it difficult to highly precisely adjust the amount of the reverse or sucked flow of the adhesive and thus to surely prevent the adhesive from dripping.

Contrary to the above configuration of the Young apparatus, the claimed valve is characterized by "said squeezing means comprising a roller rotatably supported by said rotating member so that said roller orbits about the axis of rotation of said rotating member along with rotation of said rotating member, and an arc-shaped pressing surface formed on said valve body and *extending about said axis of rotation of said rotating member*" and "wherein rotation of said rotating member makes said roller move to a position facing said pressing surface to collapse said tube and close the flow passage inside said tube and then *makes said roller move parallel to said pressing surface* so as to move a collapsed position where said tube is collapsed by said roller while maintaining said flow passage in the closed state".

The Young apparatus does not comprise the presently claimed elements in the arrangement required for the presently claimed apparatus. Therefore, the claimed invention is not anticipated by Young. Nevertheless, claim 1 has been amended in order to more clearly describe the claimed invention in a way that more clearly demonstrates the differences

between the claimed invention and the Young apparatus. As amended, claim 1 recites "**an *arc-shaped pressing surface* formed on said valve body and *extending to be centered around said axis of rotation of said rotating member***". According to the coaxial configuration of the arc-shaped pressing surface and the rotating member, the claimed valve performs a suck-back operation wherein the movement of the roller, accompanying the rotation of the rotating member, is parallel to the pressing surface, i.e., the distance between the roller and the pressing surface does not vary during the suck-back operation. Therefore, in the claimed valve, the amount of the movement of the roller to cause the suck-back operation and the resultant volume of the sucked-back fluid are effectively increased. The increased sucking-back movement of the roller and the increased volume of the sucked-back fluid, obtained due to the movement of the roller parallel to the pressing surface, can make the inventive valve usable for a high-precision process for manufacturing semiconductors, e.g., for adjusting a flow of photoresist solution coated on a semiconductor, in which it is necessary to highly precisely adjust the amount of the sucked-back solution and to surely prevent the solution from dripping.

For at least the foregoing reasons, withdrawal of the rejection is respectfully requested.

### **Rejections under 35 U.S.C. § 103**

Claims 4 and 7 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Young in view of Rasmusson (U.S. Patent No. 5,346,173). Claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Young in view of Rasmusson and further in view of Repplinger (U.S. Patent No. 4,403,764). The rejection is traversed.

Applicants respectfully submit that Rasmusson and Repplinger do not cure the deficiencies of Young with regard to the underlying claim 1 described above. Rasmusson and Repplinger would not lead one to combine the features recited in claims 4-7 with a valve according to claim 1. Therefore, neither claim 1 nor any of claims 4-7 as a whole could have been rendered obvious by the cited references.

For at least the foregoing reasons, withdrawal of these rejections is respectfully requested.

### CONCLUSION

In view of the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order. Such action is earnestly solicited.

In the event that there are any questions relating to this application, it would be appreciated if the Examiner would telephone the undersigned concerning such questions so that prosecution of this application may be expedited.

The Director is hereby authorized to charge any appropriate fees that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

Respectfully submitted,

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